

CLAIMS

We claim:

- [c1] 1. A system for sharing a hierarchical document, the hierarchical document having a node, comprising:
- a component that receives an indication of a privilege for the node, the privilege indicating access rights for the node, the indication including a holder of the privilege;
 - a component that receives an access request to the node from a requestor;
 - and
 - a component that handles the received access request, wherein the handling includes determining whether the requestor is a holder of a privilege that is appropriate for the received access request.
- [c2] 2. The system of claim 1 wherein the holder of the privilege is a user.
- [c3] 3. The system of claim 2 wherein the holder is an application program.
- [c4] 4. The system of claim 2 wherein the holder is an operator of an application program.
- [c5] 5. The system of claim 1 wherein the holder is a client computing device.
- [c6] 6. The system of claim 1 wherein the system receives an indication of the holder from an operating system.
- [c7] 7. The system of claim 1 wherein the system authenticates the holder.

- [c8] 8. The system of claim 1 wherein the received access request is a mutation relating to a node.
- [c9] 9. The system of claim 8 wherein the indication of an access request indicates the node.
- [c10] 10. The system of claim 8 wherein the privilege is appropriate for the received access request when the mutation and privilege are both Insert.
- [c11] 11. The system of claim 8 wherein the privilege is appropriate for the received access request when the mutation and privilege are both Update.
- [c12] 12. The system of claim 8 wherein the privilege is appropriate for the received access request when the mutation and privilege are both Delete.
- [c13] 13. The system of claim 1 wherein the privilege is appropriate for the received access request when the received access request is Read and the privilege is Insert.
- [c14] 14. The system of claim 1 wherein the holder holds multiple privileges.
- [c15] 15. The system of claim 1 wherein the holder holds the privilege on descendants of the node merely by holding a privilege on the node.
- [c16] 16. The system of claim 15 wherein the privilege is Delete.
- [c17] 17. The system of claim 1 wherein the holder holds a different privilege on attributes of the node.
- [c18] 18. The system of claim 17 wherein the privilege is Insert and the different privilege is Read.

- [c19] 19. The system of claim 17 wherein the holder does not hold the privilege on descendants of the node merely by holding the privilege on the node.
- [c20] 20. The system of claim 1 wherein the holder does not hold a privilege on a descendant of the node merely by owning the privilege on the node.
- [c21] 21. The system of claim 1 wherein the holder holds a different privilege on a parent of the node.
- [c22] 22. The system of claim 21 wherein the holder is privileged to request a mutation relating to the parent.
- [c23] 23. The system of claim 22 wherein the mutation is to remove the node.
- [c24] 24. The system of claim 1 wherein multiple holders hold the privilege.
- [c25] 25. The system of claim 1 wherein the holder of the privilege is a privilege group.
- [c26] 26. The system of claim 25 wherein the privilege group has multiple members.
- [c27] 27. The system of claim 26 wherein the member is an application program.
- [c28] 28. The system of claim 26 wherein the member is an operator of an application program.
- [c29] 29. The system of claim 26 wherein the member is a client computing device.

- [c30] 30. The system of claim 1 wherein the handling includes returning a message comprising an indication of mutations to users of the system.
- [c31] 31. The system of claim 30 wherein the message includes only information for which a recipient of the message holds an appropriate privilege.
- [c32] 32. A method in a distributed computing environment for sharing a hierarchical document, the hierarchical document having a node, comprising:
receiving an indication of a privilege for the node, the privilege indicating access rights for the node, the indication including a holder of the privilege;
receiving an access request to the node from a requestor; and
handling the received access request, wherein the handling includes determining whether the requestor is a holder of an appropriate privilege for the received access request.
- [c33] 33. The method of claim 32 wherein the holder of the privilege is a user.
- [c34] 34. The method of claim 33 wherein the holder is an application program.
- [c35] 35. The method of claim 33 wherein the holder is an operator of an application program.
- [c36] 36. The method of claim 32 wherein the holder is a client computing device.
- [c37] 37. The method of claim 32 wherein the system receives an indication of the holder from an operating system.
- [c38] 38. The method of claim 32 wherein the system authenticates the holder.

- [c39] 39. The method of claim 32 wherein the received access request is a mutation relating to a node.
- [c40] 40. The method of claim 39 wherein the indication of an access request indicates the node.
- [c41] 41. The method of claim 39 wherein a privilege is appropriate for the received access request when the mutation and privilege are both Read.
- [c42] 42. The method of claim 39 wherein a privilege is appropriate for the received access request when the mutation and privilege are both Insert.
- [c43] 43. The method of claim 39 wherein a privilege is appropriate for the received access request when the mutation and privilege are both Update.
- [c44] 44. The method of claim 39 wherein a privilege is appropriate for the received access request when the mutation and privilege are both Delete.
- [c45] 45. The method of claim 39 wherein a privilege is appropriate for the received access request when the mutation is Read and the privilege is Insert.
- [c46] 46. The method of claim 32 wherein the holder holds multiple privileges.
- [c47] 47. The method of claim 32 wherein the holder holds the privilege on descendants of the node merely by holding a privilege on the node.
- [c48] 48. The method of claim 47 wherein the privilege is Delete.
- [c49] 49. The method of claim 32 wherein the holder holds a different privilege on attributes of the node.

- [c50] 50. The method of claim 49 wherein the privilege is Insert and the different privilege is Read.
- [c51] 51. The method of claim 49 wherein the holder does not hold the privilege on descendants of the node merely by holding the privilege on the node.
- [c52] 52. The method of claim 32 wherein the holder does not hold a privilege on a descendant of the node merely by owning the privilege on the node.
- [c53] 53. The method of claim 32 wherein the holder holds a different privilege on a parent of the node.
- [c54] 54. The method of claim 53 wherein the holder is privileged to request a mutation relating to the parent.
- [c55] 55. The method of claim 54 wherein the mutation is to remove the node.
- [c56] 56. The method of claim 54 wherein the mutation is to remove an attribute.
- [c57] 57. The method of claim 32 wherein multiple holders hold the privilege.
- [c58] 58. The method of claim 32 wherein the holder of the privilege is a privilege group.
- [c59] 59. The method of claim 58 wherein the privilege group has multiple members.
- [c60] 60. The method of claim 59 wherein the member is an application program.

- [c61] 61. The method of claim 59 wherein the member is an operator of an application program.
- [c62] 62. The method of claim 59 wherein the member is a client computing device.
- [c63] 63. The method of claim 32 wherein the handling includes returning a message comprising an indication of mutations to users of the system.
- [c64] 64. The method of claim 63 wherein the message includes only information for which a recipient of the message holds an appropriate privilege.
- [c65] 65. The method of claim 32 wherein the access request identifies the node with a unique identification.
- [c66] 66. The method of claim 32 wherein the access request is received as a message.
- [c67] 67. The method of claim 66 wherein the message is represented in XML.